

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below in marked-up form.

1. (Previously Presented) A liquid crystal device characterized by including:
a liquid crystal layer which controls a phase distribution of transmitted light;
a pair of substrates which sandwich and seal said liquid crystal layer therebetween; and
a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer, and characterized in that:
an uneven portion for giving a distribution to a thickness of said liquid crystal layer is provided inwardly of said substrates, and
said pair of electrodes are formed in planar shapes parallel to each other, wherein
said uneven portion is an uneven shape, said uneven shape corresponding to a desired phase distribution; and
said uneven shape of said uneven portion corresponds to the spherical aberration and the comma aberration of a wavefront.
2. (Original) A liquid crystal device according to claim 1, characterized in that said uneven portion is formed of a molded synthetic resin disposed between said liquid crystal layer and said electrodes.
3. (Original) A liquid crystal device according to claim 2, characterized in that said molded synthetic resin is made of an ultraviolet-curable resin.
4. (Original) A liquid crystal device according to claim 1, characterized in that said uneven portion is formed of a dielectric layer deposited on a liquid-crystal-side surface of said electrodes.
5. (Original) A liquid crystal device according to claim 1, characterized in that said uneven portion is provided on only one of said pair of substrates.

6. (Previously Presented) An optical pickup characterized by having an objective lens disposed to face a recording medium, a laser light source which supplies laser light to said objective lens, and a liquid crystal device which is disposed in an optical path leading from said laser light source to said objective lens and controls a phase distribution of transmitted light, and characterized in that:

said liquid crystal device includes:

a liquid crystal layer which controls the phase distribution of the light being transmitted;

a pair of substrates which sandwich and seal said liquid crystal layer therebetween;

a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer; and

an uneven portion for giving a distribution to a thickness of said liquid crystal layer provided inwardly of said substrates, wherein

said pair of electrodes are formed in planar shapes parallel to each other;

said uneven portion is an uneven shape, said uneven shape corresponding to a desired phase distribution; and

said uneven shape of said uneven portion corresponds to the spherical aberration and the comma aberration of a wavefront.

7. (Previously Presented) A manufacturing method for a liquid crystal device which includes:

a liquid crystal layer which controls a phase distribution of transmitted light;

a pair of substrates which sandwich and seal said liquid crystal layer therebetween; and

a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer,

said method characterized by comprising:

a step of providing an uneven portion for giving a distribution to a thickness of said liquid crystal layer inwardly of said substrates; and

a step of forming said pair of electrodes into planar shapes parallel to each other,
wherein

said uneven portion is formed in an uneven shape, said uneven shape corresponding to a desired phase distribution; and

said uneven shape of said uneven portion corresponds to the spherical aberration and the comma aberration of a wavefront.

8. (Original) A manufacturing method for said liquid crystal device according to claim 7, characterized in that in said step of providing said uneven portion, a molded synthetic resin having said uneven portion is provided between said liquid crystal layer and said electrodes by a shape transfer method using a mold.

9. (Original) A manufacturing method for said liquid crystal device according to claim 8, characterized in that said molded synthetic resin is made of an ultraviolet-curable resin and is cured by irradiation with ultraviolet rays.

10. (Original) A manufacturing method for said liquid crystal device according to claim 7, characterized in that in said step of providing said uneven portion, a dielectric layer is provided on a liquid-crystal-side surface of said electrodes by patterning using a photomask.